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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,848	10/26/2004	Stephen Paul Briancourt	540-527	6261

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EXAMINER	
MAYLE, EDWARD J	
ART UNIT	**PAPER NUMBER**
3644	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/511,848	BRIANCOURT, STEPHEN PAUL	
	Examiner	Art Unit	
	Edward J. Mayle	3644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/26/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17,19 and 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17,19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05/02/2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/19 & 10/26 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 1, the only positively claimed structure is a "plurality of doors" whose intended use is to be able to deploy landing gear; the landing gear itself is not positively claimed as being part of the invention. Therefore, in Claim 20 "a further landing gear" is indefinite. For purpose of examination, the examiner takes the position that multiple landing gear are part of the invention in claim 20.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7, 12,19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Riggles Jr. (US Patent 2,406,710).

With regards to Claim 1: Riggles Jr. discloses an aircraft landing gear door assembly including a plurality of doors moveable between open positions, in which landing gear (2, Fig. 1) can be deployed through an aperture, and closed positions

(Figs. 2-4), in which the doors are closed across the aperture the plurality of doors including a first door mounted for rotational movement between closed and open positions about a first generally longitudinal axis (6, Fig. 1) and a transverse door mounted for rotational movement between closed and open positions about a generally horizontal axis that is transverse to the first generally longitudinal axis (16, Fig. 1).

With regards to Claim 2: Riggles Jr. discloses an assembly according to claim 1, in which the first door is mounted for fixed-axis rotational movement about the first generally longitudinal axis (door 6 is hinged at 7, Fig. 1).

With regards to Claim 3: Riggles Jr. discloses an assembly according to claim 1, in which the transverse door is mounted for fixed-axis rotational movement about the transverse generally horizontal axis (door 16 is hinged at 17, Fig. 1).

With regards to Claim 7: Riggles Jr. discloses an assembly according to claim 1, in which the transverse door is aft of the first door (Figs. 1-4).

With regards to Claim 12: Riggles Jr. discloses an assembly according to claim 1, in which the plurality of doors include a third door mounted for rotational movement between closed and open positions about a third generally longitudinal axis, the first and third doors defining a pair of doors on opposite sides of the aperture (6, Fig. 1; Col. 1, lines 38-40).

With regards to Claim 19: Riggles Jr. discloses an aircraft including a landing gear door assembly according to claim 1 (Claims 1-3 all claim the aircraft including the assembly).

With regards to Claim 20: Riggles Jr. discloses an aircraft according to claim 19 (see above). Although Figure 1 shows only one aircraft landing gear Examiner takes official notice that there are at least two main landing gears and a nose landing gear on aircraft. 2, Fig. 1 is a landing gear; the corresponding landing gear on the other side of the airplane (not shown) is a further landing gear. When 2 is deployed it is adjacent to one end of first door (6, Fig. 1) when in its open position, the transverse door (16, Fig. 1) being disposed adjacent to said one end of the first door (6, Fig. 1) when the doors are in their closed position. The analogous situation occurs for the corresponding landing gear (the further landing gear) on the other side of the aircraft.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riggles Jr. in view of White (WO 01/56878 A1).

With regards to Claim 4: Riggles Jr. discloses an assembly according to claim 1 (see above), wherein the doors 6 are operated by rods 13 which are connected to crank arms 12 which are moved via connection to gears 10 which are in turn rotated through connection to shaft 11, gear 10 being mated to a larger gear which is ultimately rotated by action of the landing gear extension and retraction. Door 16 is actuated simultaneously with door 6, but by separate means: it is spring loaded. Riggles Jr. does

not discloses a linkage mechanism and a prime mover, the linkage mechanism connecting the plurality of doors to the prime mover such that the prime mover is effective to operate all the plurality of doors.

White discloses a linkage mechanism and a prime mover, the linkage mechanism connecting the plurality of doors to the prime mover such that the prime mover is effective to operate all the plurality of doors (page 1, lines 12-24).

It would have been obvious for a person having ordinary skill in the art at the time of the invention to modify the assembly of Riggles Jr. by including the teaching of White to operate all of the landing gear doors with "actuation means driving only one of the doors" (Page 1, line 22).

With regards to Claim 5: Riggles Jr., as modified, discloses an assembly according to claim 4 (see above).

White discloses that the prime mover comprises a linear actuator (page 2, line4). Being able to operate the gear doors in a single stroke of the linear actuator is merely stating an inherent feature of linear actuators.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Riggles Jr. in view of General Aircraft Limited (GB-A-537,234).

Riggles Jr. discloses an assembly according to claim 1 in which the transverse door is disposed below the aperture in its open position.

General Aircraft Limited teaches an apparatus that allows the transverse door to be disposed at least mostly above the aperture in its open position (7, Fig. 1; Page 1 lines 37-59).

It would have been obvious for a person having ordinary skill in the art at the time of the invention to improve upon the design of Riggles Jr. by incorporating the teachings of General Aircraft Limited in order to prevent "considerable resistance ... in the slip stream" (page 2 lines 41-42), i.e. to minimize aerodynamic drag.

Claims 8-11 and 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riggles Jr. in view of Sakurai (US Patent 6,345,786 B1).

In regards to Claim 8: Riggles Jr. discloses an assembly according to claim 1, in which the plurality of doors (6, 16 Fig. 1) are mounted so that their movement from the closed to the open positions do not involve movement through space which was occupied by other doors in their closed positions (Fig. 1).

Sakurai teaches a linked multi-segment landing gear door for aircraft in which the plurality of doors include a second door moveable between closed and open positions, the second door being adjacent to the first door in the closed positions of the doors, the first door being so mounted that its rotational movement from its closed position to its open position involves movement of at least part of the first door through space which is occupied by the second door in its closed position and vacated by the second door in its open position (Figs. 2A,2B,2C).

It would have been obvious for a person having ordinary skill in the art at the time of the invention to improve upon the design of Riggles Jr. by incorporating the teachings of Sakurai by incorporating multi-segmented landing gear doors in order to provide adequate clearance between the landing gear doors and the ground or other aircraft

parts. Note that in Fig. 1, item 30 would interfere with the outboard landing gear or ground if it were not segmented as taught by Sakurai.

In regards to Claim 9: Riggles Jr., as modified, discloses an assembly according to claim 8 (see above), in which the second door is mounted for fixed-axis rotational movement about a second generally longitudinal axis. Axes 66, 90, and 108 of Sakurai Fig. 2B are all longitudinal axes providing for fixed-axis rotational movement, any one of which could be regarded as the second one.

In regards to Claim 10: Riggles Jr., as modified, discloses an assembly according to claim 9 (see above), in which the first generally longitudinal axis is disposed at a location vertically spaced above the level of the aperture. All of axes 66, 90, and 108 of Sakurai Fig. 2b are vertically above the aperture. Any one of these axes could be regarded as the first one.

In regards to Claim 11: Riggles Jr., as modified, discloses an assembly according to claim 10 (see above), in which the first generally longitudinal axis is disposed in a region overlying the locations of adjacent edges of the first and second doors when they are closed. Doors 46 and 44 of Sakurai Fig. 2A can be taken as the first and second doors, which are shown adjacent in the closed position. Axis 108 then needs to be taken as the first longitudinal axis, and it is shown located above the region of doors 44 and 46.

In regards to Claim 13: Riggles Jr. discloses an assembly according to claim 12 (see above) with only one door which rotates about a longitudinal axis on each side of the aperture.

Sakurai teaches linked multi-segmented doors where up to three door segments (see Sakurai 42,44,46 Figs. 2A, 2B, 2C) could be used in place each single door 6 of Riggles Jr. Fig. 1. In Sakurai Fig. 2A, door 46 will be called the first door / axis 108 first axis; door 44 the third door / axis 90 third axis; door 42 the fourth door / axis 66 fourth axis.

In Sakurai the plurality of doors include a fourth door (42) moveable between closed and open positions, the fourth door being adjacent to the third door (44) in the closed positions of the doors, the third door being so mounted that its rotational movement from its closed position to its open position involves movement of at least part of the first door (46) through space which is occupied by the fourth door in its closed position and vacated by the fourth door in its open position (Sakurai Fig. 2C: arm 106 of door 46 moves through the space occupied by door 42).

In regards to Claim 14: Riggles Jr., as modified, discloses an assembly according to claim 13 (see above), in which the third door (44, Sakurai Fig. 2A) is mounted for fixed-axis rotational movement about a third generally longitudinal axis (90, Sakurai Fig. 2A).

In regards to Claim 15: Riggles Jr., as modified, discloses an assembly according to claim 13 (see above), in which the third generally longitudinal axis (90, Sakurai Fig. 2A) is disposed at a location vertically spaced above the level of the aperture.

In regards to Claim 16: Riggles Jr., as modified, discloses an assembly according to claim 15 (see above), in which the third generally longitudinal axis (90,

Sakurai Fig. 2A) is disposed in a region overlying the locations of adjacent edges of the third (44) and fourth (42) doors when they are closed.

In regards to Claim 17 Riggles Jr., as modified, discloses an assembly according claim 13 (see above), in which the fourth door (42 Sakurai Fig. 2A) is mounted for fixed-axis rotational movement about a fourth generally longitudinal axis (66 Sakurai Fig. 2A).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward J. Mayle whose telephone number is (571)-272-8969. The examiner can normally be reached on Mon-Fri 0830-1700.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teri Luu can be reached on (571)-272-7045. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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